

In the claims:

1. In a radio communication system having a mobile node selectably operable to communicate with a network part by way of a radio link formed therebetween, an improvement of apparatus for facilitating control of when control signaling is generated at the mobile node for communication to the network part, said apparatus comprising:

a determiner adapted to receive indications indicating whether a prior-sent control signal sent by the mobile node has been successfully delivered to the network part, said determiner operable responsive thereto for determining whether the network part of the radio communication system is accessible by the mobile node; and

an access-attempt-time selector operable responsive to a determination by said determiner of less than a selected level of access to the network part of the radio communication system by the mobile node, said access-attempt-time selector for selecting when to permit transmission of a subsequent control signal by the mobile node to attempt access to the network part of the communication system.

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2. The apparatus of claim 1 wherein the prior-sent control signal, the indications of which said determiner is adapted to receive, is generated during a registration procedure effectuated by the mobile node.

3. The apparatus of claim 2 wherein the determination made by said determiner is representative of whether the registration procedure effectuated by the mobile node is successful.

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4. The apparatus of claim 1 wherein the subsequent control signal of which said access-attempt-time selector selects when to permit transmission is generated pursuant to a network searching procedure.

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5. The apparatus of claim 4 further comprising a counter adapted to receive a value indicative of a number of prior network searching procedures attempted by the mobile node, said counter for maintaining a count value of the number of prior network searching

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procedures, said access-attempt-time selector further coupled to said counter to receive an indication of the count value, and wherein selection made by said selector of when to permit the transmission of the subsequent control signal is, at least in part, responsive to the count value.

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6. The apparatus of claim 5 wherein selection made by said selector of when to permit the transmission of the subsequent control signal at least selectably delays the transmission by a time delay proportional to the count value.

10 7. The apparatus of claim 6 wherein the time delay selected by said selector is a first constant-delay time when the count value is less than a first threshold.

8. The apparatus of claim 7 wherein the time delay selected by said selector is a second constant-delay time when the count value is greater than a second threshold.

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9. The apparatus of claim 8 wherein the time delay selected by said selector is proportional to the count value when the count value is between the first threshold and the second threshold.

20 10. The apparatus of claim 5 wherein the count value maintained at said counter is reset responsive to determination by said determiner that the network part is accessible by the mobile node.

25 11. The apparatus of claim 10 wherein said determiner determines the network part to be accessible by the mobile node upon successful completion of the registration procedures by the mobile node with the network part.

12. The apparatus of claim 1 wherein said access-attempt-time selector limits transmission of the subsequent control signal by the mobile node upon determination by said

determiner that the network part of the radio communication system is inaccessible to the mobile node.

13. The apparatus of claim 1 wherein the mobile node is selectably operable to perform a registration procedure and to perform a routing area update procedure, wherein, when the prior-sent control signal, the indications of which said determiner is adapted to receive, is generated during a registration procedure, said access-attempt-time selector further operates to prevent performance, by the mobile node, of a routing area update procedure.

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14. The apparatus of claim 1 wherein the mobile node is selectably operable to perform a registration procedure and to perform a location update procedure, wherein, when the prior-sent control signal, the indications of which said determiner is adapted to receive is generated during a registration procedure, said access-attempt-time selector further operates to prevent performance, by the mobile node, of a routing area update procedure.

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15. A method for facilitating control of when control signaling is generated at a mobile node for communication by way of a radio link to a network part of a radio communication system, said method comprising:

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determining, responsive to indications indicating whether a prior-sent control signal sent by the mobile node has been successfully delivered to the mobile node, whether the network part of the radio communication system is accessible by the mobile node; and

selecting when to permit transmission of a subsequent control signal by the mobile node to attempt access to the network part of the communication system responsive to a determination during said operation of determining of access by the mobile node at less than a selected level of access to the network part.

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16. The method of claim 15 wherein the subsequent control signal, selection of when to permit transmission thereof is made during said operation of selecting, comprises a network-searching-procedure signal.

5 17. The method of claim 16 further comprising the operation of maintaining a count value of a number of prior network searching procedures attempted by the mobile node, and wherein selection made during said operation of selecting of when to permit the transmission of the subsequent control signal is, at least in part, responsive to the count value.

10 18. The method of claim 17 wherein selection made during said operation of selecting delays the transmission of the subsequent control signal by a time delay proportional to the count value when the count value is between a first threshold and a second threshold.

15 19. The method of claim 17 further comprising the operation of resetting the count value maintained during said operation of maintaining responsive to determination during said operation of determining that the network part is accessible by the mobile node.

20 20. The method of claim 15 further comprising the operation of selectably placing the mobile node into a limited-access state upon determination during said operation of determining that the network part of the radio communication system is inaccessible to the mobile node.

25 21. The method of claim 15 wherein the mobile node is selectably operable to perform a registration procedure and to perform a routing area update procedure, wherein, when the prior-sent control signal, responsive to which determination is made during said operation of determining, is generated during a registration procedure, said operation of selecting further comprises preventing performance, by the mobile node, of a routing area update procedure.

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22. The method of claim 15 wherein the mobile node is selectably operable to perform a registration procedure and to perform a location area update procedure, wherein, when the prior-sent control signal, responsive to which determination is made during said operation of determining, is generated during a registration procedure, said operation of
5 selecting further comprises preventing performance, by the mobile node, of a location area update procedure.

23. A method for facilitating control of when control signalling generated at a mobile node for communication by way of a radio link to a network part of a radio
10 communication system, said method comprising:
initiating effectuation of registration procedures of the mobile node with the network part;
preventing effectuation of updating procedures by the mobile node during effectuation of the registration procedures initiated during said operation of initiating;
15 determining whether the registration procedure initiated during said operation of initiating results in at least access of the mobile node to the network part; and, if not
selectably increasing a delay period prior to generating subsequent signals to access the network part.

20 24. A method for facilitating initiation of allocation of channel capacity upon a radio link in a radio communication system in which a mobile node selectably communicates data by way of the radio link with a network part, said method comprising:
selectably generating an initial channel allocation request to communicate the data from the mobile node to the network part when data is available to be communicated by the
25 mobile node to the network part; and
selecting when to cause generation of at least a first subsequent channel allocation request absent detection at the mobile node of a response to the initial channel allocation request and upon determination that communication conditions on the radio link are
inadequate.

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